09/830398

JC08 Rec'd PCT/PTO 26 APR 2001

Please reply to Perth office

July 26, 2000

Our Ref: P15548PCAU RHB:JAM

Commissioner of Patents
IP Australia

Dear Sir,

Re: Patent in International PCT Application No. PCT/AU99/00922 by Bains Harding Limited

We refer to the Written Opinion, which issued upon the above application on 20 July 2000.

We request that pages 3 and 19 be replaced with pages 3 and 19 as enclosed herewith in duplicate.

The amended claim 1 specifies that the longitudinally extending contacting surfaces of the module are the relevant surfaces including a portion formed by a portion of one of the insulating layers. As this amendment, also reflected in the pertinent Statement of Invention at page 3, addresses the Examiner's concerns, we include no submissions on the citation.

Favourable reconsideration of the application is respectfully requested.

Yours respectfully,
WATERMARK

Richard H Baddeley

Enc

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June 29, 2000

Our Ref: P15548PCAU RHB:JAM

Commissioner of Patents
IP Australia

Dear Sir,

Re: Patent in International PCT Application No. PCT/AU99/00922 by Bains Harding Limited

We refer to the Written Opinion which issued upon the above application on 10 May 2000.

Amendments

We request that pages 3 and 19 be replaced by pages 3 and 19 as enclosed herewith in duplicate. The object of the amendment is to recite the feature in claim 1 (and the corresponding statement of invention) that the contacting surfaces of the module have portion formed by a portion of at least one of the first inner insulation layer and the second outer insulation layer. Clear support for this is provided by the drawings.

Distinguishing the References

GB 2296749

This module is readily distinguished. As the abstract says:

> *" ..... each insulating element 1 comprises a curved external covering 2, especially a sheet of metal or plastics material, having flanged edges 4, 5 and containing rigid foam 3 provided on its joint surface with a layer of flexible foam."*

thus, the contacting surfaces do not incorporate any portion of the insulating layers 4" and 3. Indeed, the requirement of flanged surfaces (of cladding) and a covering layer of flexible foam results in a more complex construction that is avoided by the present invention.

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EP 297212

These products are directed at non-cryogenic insulation, which is a totally distinct art to that of cryogenic insulation. It is no part of the present invention to absorb water within the insulation. In cryogenics, water vapour ingress means ice formation and deterioration in insulation efficiency. Accordingly, the reference teaches away from cryogenic insulation. Please also note that current claims expressly recite that the inner insulation layer have suitable thermal shock characteristic for cryogenic conditions, a parameter not necessary in the citation.

Derwent 1997-035858

Similar arguments apply to this reference which is directed to insulation of domestic piping, a non-cryogenic application. The construction is simply not suitable for cryogenic applications so it constitutes teaching away from the present invention.

Clarity Issue

The question of "suitable thermal shock characteristic under cryogenic conditions". The thermal shock undergone by insulation under cryogenic conditions is a known issue. The specification provides general description of suitable materials at page 3, lines 15 to 22. A more detailed discussion follows at page 8, line 23 to page 9, line 5.

In view of this, the usage is submitted to be clear.

Conclusion

Favourable reconsideration of the application is respectfully requested.

Yours respectfully,
WATERMARK

Richard H Baddeley

(b) at least one second outer insulation layer disposed radially outwardly of said inner insulation layer;

(c) at least one water vapour barrier layer; and

(d) a cladding layer,

wherein said longitudinally extending contacting surfaces include a portion formed by a portion of at least one of said first inner insulation layer and said second outer insulation layer.

By pre-formed is meant that the insulation module may be manufactured, as a complete insulating article, prior to transfer to, and installation at, a factory site. The factory site may be very remote to the site where installation will take place. Such pre-fabrication of modules, which may be installed directly at the site, saves significant site costs and reduces the cost of the insulation project.

The pre-formed module may be made up of any desired number of insulating layer(s) and any desired number of cladding layer(s) though minimising the number of layers will facilitate accurate fabrication. Each layer is of nature and thickness appropriate to the application.

The insulating layers must firstly include, proximate the insulated component, and most advantageously in contact with it, at least one first inner insulation layer of an insulation material, ideally a polymeric foam which retains flexibility and does not embrittle at cryogenic temperatures. Such foam layer accommodates thermal expansion/contraction behaviour of the insulated component and must therefore have appropriate thermal shock characteristics at cryogenic temperatures. Exemplary of such an insulating material is a polyimide foam.

Further second layer(s) of insulating materials of same or different nature from the first layer(s) may be employed radially outwardly from the first insulation layer. Polyisocyanurate resin (PIR), polyurethane or possibly other polymer foams, which may be harder than the first layer, may be employed for such further layers. Five or more such insulation layers may be provided, three or more of which may be formed of a polymeric foam. More advantageously, one or more of the insulation layers may be formed integral to facilitate fabrication. For example, the layers radially outwardly disposed from the inner insulation layer may be integrated to reduce the number of layers of insulation. Typically, the PIR or polyurethane foam layer may be

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A pre-formed insulation module for insulating a process component having opposed longitudinally extending contacting surfaces extending along a length thereof and terminal contacting surfaces at each end thereof comprising:

(a) at least one first inner insulation layer being constituted of an insulation material having suitable thermal shock characteristic under cryogenic conditions and having one surface proximate to a surface of a component to be insulated,

(b) at least one second outer insulation layer disposed radially outwardly of said inner insulation layer;

(c) at least one water vapour barrier layer; and

(d) a cladding layer,

wherein said longitudinally extending contacting surfaces include a portion formed by a portion of at least one of said first inner insulation layer and said second outer insulation layer.

2. The module of claim 1 including connection means for connecting said module to a further adjacent such module for insulating said component.

3. The module of claim 2 wherein said connection means are circumferentially and longitudinally disposed relative to a longitudinal axis of said module.

4. The module of claim 3 wherein said circumferentially disposed connection means are formed in the terminal contacting surfaces and the longitudinally disposed connection means are formed in said longitudinally extending surfaces.

5. The module of claim 3 or 4 wherein said connection means are tongue and groove joints, complementary joints being formed at each end of the module.